

Abstract of the Disclosure

The subject invention provides improved methods for injecting ions into a quadrupole ion trap mass spectrometer (QIT-MS). The methods of the subject invention
5 are applicable to procedures involving atmospheric pressure laser desorption (AP-LD) of a sample to be investigated. Specifically, the subject invention involves controlling the pulse frequency of the laser such that the laser pulses are synchronized with changes in radiofrequency (RF) amplitude levels of the QIT-MS. Advantageously, by utilizing the methods of the subject invention it is possible to improve the accuracy and
10 reproducibility of the results while improving duty cycle and reducing sample consumption.